



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,825	06/11/2001	Patrick J. Thrash	38190/207865	3191

826 7590 10/29/2003

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER

DAVIS, ROBERT B

ART UNIT	PAPER NUMBER
----------	--------------

1722

6

DATE MAILED: 10/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/878,825

Applicant(s)

THRASH ET AL.

Examiner

Robert B. Davis

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 22-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-13 is/are allowed.
- 6) ☒ Claim(s) 1,2,6-9,14-16,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 17-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-21) in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

2. A new copy of the specification and claims is required as the original version was filed with an improper top margin. Because of the small top margin, many of the pages have text eliminated by a two-hole punch during assembly of the application. Appropriate action is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Leoni et al (US005152949A: figures 1-2G; column 3, line 12 to column 4, line 22; column 5, line 13 to column 6, line 5, and column 9, line 38 to column 10, line 58).

A mold assembly (10) for distributing a resin throughout a dry fiber preform (P) to form a composite structure, said mold assembly comprising: a first mold line tool (14) supporting the dry fiber preform; a plurality of second mold line tools (42, 32) disposed

Art Unit: 1722

on a portion of the dry fiber preform to form a hard interface between the second mold line tool and the portion of the dry fiber preform; a vacuum bag (36) encapsulating the second mold line tool and forming an air-tight seal around the hard interface; a resin supply (26) connected in fluid communication with the dry fiber preform and supplying resin to the hard interface; and a vacuum supply (28) connected in fluid communication with the mold assembly, supplying vacuum pressure to the hard interface and drawing excess resin away from the hard interface such that the composite structure is tightly toleranced at the hard interface after curing. It is clear from figure 1 that second line mold tools (42) have mold details of at least two types of stiffeners. The resin injection ports (26) are connected to a source of RTM resin (column 5, lines 28-31).

5. Claims 1, 2, 6, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Burgess et al (5,902,535: figures 1-13 and column 3, lines 43-65).

A mold assembly (10) for distributing a resin throughout a dry fiber preform (20) to form a composite structure, said mold assembly comprising: a first mold line tool (12) supporting the dry fiber preform; a second mold line tool (30, 32) disposed on a portion of the dry fiber preform to form a hard interface between the second mold line tool and the portion of the dry fiber preform; a vacuum bag (column 3, lines 56-58) encapsulating the second mold line tool and forming an air-tight seal around the hard interface; a resin supply in the form of a resin film (18) connected in fluid communication with the dry fiber preform and supplying resin to the hard interface; and a vacuum supply (inherent due to the language ("The entire assembly is then bagged with a silicon rubber vacuum bag, which is sealed, and air is vacuumed out of the bag.") connected in fluid communication

Art Unit: 1722

with the mold assembly, supplying vacuum pressure to the hard interface and drawing excess resin away from the hard interface such that the composite structure is tightly toleranced at the hard interface after curing. The entire assembly is placed within an autoclave, hence the vacuum line must go through the autoclave.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 14-16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leoni et al taken together with Taricco (US005441692A: figures 1-5; column 2, lines 13-15 and 54-65).

Leoni et al disclose a mold tool as discussed supra wherein the dry fibers are impregnated with resin by resin transfer molding such that the injection step displaces

Art Unit: 1722

the flexible mold assembly after vacuum has been drawn and then increased pressure is applied inside chamber (38) to squeeze out excess resin. The reference does not teach an autoclave having a pressurized chamber.

Taricco discloses a similar apparatus for squeezing out excess resin to increase the fiber to resin ratio of a fiber reinforced composite article wherein the mold assembly (28, 24) is placed inside an autoclave tank (14). The autoclave tank is pressurized to squeeze out excess resin as illustrated in figure 5.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Leoni et al by using an autoclave as disclosed by Taricco as the use of an autoclave allows for the a plurality of different molds to be used with the autoclave instead of designing a specific chamber for each mold as in Leoni et al. The fiber volumes of the preform and molded article are intended use limitations that do not further define the structure of the apparatus.

Allowable Subject Matter

9. Claims 10-13 are allowed over the prior art of record.
10. Claims 3-5 and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter: In regards to claims 3, 10 and 17, none of the prior art of record teach or suggest first mold tool for supporting a dry fiber preform, a second mold tool disposed on the preform, a vacuum bag encapsulated around the second mold tool and the

Art Unit: 1722

preform and an external locating fixture rigidly fixed to the second mold tool through an opening in the vacuum bag. The closest prior art (Burgess et al discloses locating rods (34, 36) cooperating with locating angles (38, 40), but the entire assembly is placed inside a vacuum bag and the reference fails to disclose or suggest an external locating fixture fixed to a second mold through an opening in a vacuum bag.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remainder of the cited art displays various composite manufacturing apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Davis whose **current** telephone number is 703-308-2625. ***In December, the examiner's phone number will be changing to 571-272-1129.*** The examiner can normally be reached on Monday-Friday 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Robert B. Davis
Primary Examiner
Art Unit 1722

10/27/07